all healthcare provider services during a 5-year period in a non-experimental environment. An econometric model was built to assess the effect of asthma profile and other factors on the cumulative costs. **METHODS:** Using the discharge registry of the Pulmonary Clinic of Helsinki University Hospital all patients who had visited the clinic during the 2000–2004 for diagnosis or for exacerbations of asthma were recruited. The comprehensive 5-year medical records of consented patients were processed for electronic assessment. All contacts with different health care providers were identified with text-mining methods and categorized according to the cost-determinant factors (location of the provider, personnel involved, type of event, urgency). Asthma-related contacts were identified and disease severity was graded according to different asthma medications. An econometric model of the health care cost function was specified with annual asthma care costs as the dependent variable and age, gender, smoking, co-morbidities and different types of asthma medication included as confounding variables. **RESULTS:** The annual costs for care of chronic asthma without medication were €270. Users of long-acting beta-agonists had non-medication costs of €75/yr and those with systemic corticosteroids of €700/yr more than those of the mild type. Smokers had €150 of yearly costs more than non-smokers. As the patient age increases, we see an additional cost of €5 per year. Gender, co-morbidities (diabetes, hypertension, coronary disease) and obesity did not increase significantly the annual expenses. Altogether, increased costs in severe asthma were mostly due to ER visits and hospitalizations. **CONCLUSIONS:** Our approach gives a unique in-depth analysis of the clinical course of chronic asthma, identifies different patterns of healthcare resource utilization and allows comparisons between various therapeutic approaches.

PAS5

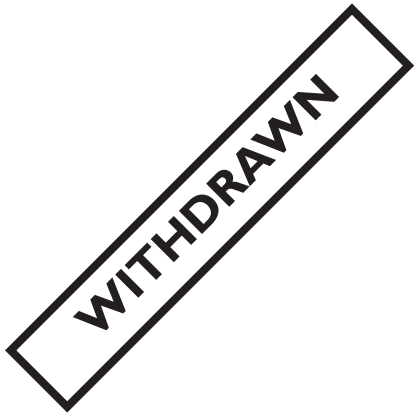
RELATIONSHIP OF PATIENT CHARACTERISTICS AND RESOURCE USE IN SEVERE ASTHMA

White AF[1], Parasuraman S[2]
[1]University of Florida, Gainesville, FL, USA, [2]Wyeth Pharmaceuticals, Collegeville, PA, USA

OBJECTIVES: Although severe asthma affects only 5% of all asthmatics, it is estimated to consume 80% of resources. The objective of this review was to summarize current literature to explore the relationship of patient characteristics and resource use in severe asthma. **METHODS:** A comprehensive literature search of the National Guidelines Clearinghouse and Medline from 1966 to July 2005 was conducted to identify relevant studies. Database-specific key words were used to identify studies in severe asthma and limited to Human and English. Additional key words were used to narrow the search (e.g. "economics") to identify studies reporting resource use. Studies reporting at least one patient characteristic of age, race, gender and one resource use (e.g. hospitalization) were identified and analyzed using descriptive analysis. **RESULTS:** The search returned a total of 156 abstracts and/or full text articles and of those, 92 were subjected to further review and analysis. Twenty-eight of these studies were randomized controlled trials. Seventeen studies reported resource use in terms of a monetary value, which ranged from $1000 to $17,000 per patient per year. The most commonly reported resource category was physician visits followed by emergency room visits. Older patients required more asthma related medications than younger patients. Hospitalization rates were higher for minorities with severe asthma than for non-minorities. **CONCLUSIONS:** Few studies have investigated the relationship of patient characteristics and resource use in severe asthma. In general, there are patient characteristics that can predict resource use (i.e. lung function, age, gender, race). Compliance was not measured in the reviewed studies, which could impact resource use. Studies in severe asthma are warranted, which address compliance and economics. This review reports the current state on diagnosis, treatment and allocation of health care resources in severe asthma. Interventions that could improve compliance could positively impact asthma management.

ASTHMA—Health Care Use & Policy

PAS6



PAS7

COMPUTERIZED DECISION SUPPORT FOR ASTHMA MANAGEMENT

Duvvuri VRSK, Finkelstein J
University of Maryland School of Medicine, Baltimore, MD, USA

OBJECTIVES: To develop prediction rules to forecast asthma exacerbations using information collected by home tele-monitoring systems. **METHODS:** Development of predictive models was based on the data collected by a home telemedicine system from asthma patients. The data collected by the system included respiratory symptoms, peak expiratory flow (PEF), drug utilization and asthma severity. All patients used a 4-zone asthma action plan in which zones 1 (green) and 2 (high yellow) corresponded to low levels of severity, and zones 3 (low yellow) and